

AS ORIGINALLY FILED
IAP5 Rec'd PCT/PTO 17 FEB 2006

EXERCISE APPARATUS

The present invention relates to an exercise apparatus and particularly but not exclusively relates to a free standing exercise apparatus for use by a single user to develop the major and minor muscles in the upper half
5 of the human body.

It has previously been proposed to provide an exercise apparatus to enable a user to perform multiple repetitive exercises to improve the condition of the upper half of the human body. Such prior apparatus can be relatively large, complex, expensive and unwieldy and not necessarily
10 suitable for the plurality of different exercises that a user may wish to perform.

According to a first aspect of the invention there is provided an exercise apparatus comprising at least one upright joined to a cross bar provided with a limb support means, the upright being of such a length that the
15 cross bar is spaced from the floor sufficiently such that, in use, the limb support means comprises a leg support means to be positioned beneath, and to support, the legs of the user when the user is positioned beneath the cross bar, the cross bar also being sufficiently spaced from the floor such that, in use, the limb support means comprises a hand grip means to
20 enable a user to push down on the exercise apparatus so that the exercise apparatus supports at least some of the user's weight.

Preferably the limb support means comprises two limb supports that are relatively spaced along the longitudinal axis of the cross bar.

Preferably the cross bar is provided with a third limb support in between
25 the two limb supports.

Preferably the exercise apparatus comprises two spaced apart uprights.

Preferably each limb support is adjacent a respective upright.

Preferably the cross bar is further provided with at least two additional limb supports that are also relatively spaced along the longitudinal axis of the cross bar, but which extend perpendicularly away from the longitudinal axis of the cross bar.

Preferably the additional limb supports are positioned between the two other limb supports so as to be spaced from the uprights.

Preferably each additional limb support terminates in a further limb support the longitudinal axis of which is substantially perpendicular to the longitudinal axis of the respective additional limb support.

Preferably the exercise apparatus comprises adjustment means operative to vary the orientation of the further limb support relative to the respective additional limb support.

Preferably the adjustment means is operative such that the further limb support can be rotated through 360° about the longitudinal axis of the respective additional limb support.

Preferably the adjustment means is operative such that the orientation of the further limb support can be adjusted to a plurality of discrete positions relative to the additional limb support.

Preferably the adjustment means comprises a plug formed on one of the additional or further limb supports, and a socket on the other of the additional or limb supports, the socket, in use, receiving the plug and

engaging the plug to retain the plug in an orientation relative to the socket, the orientation being adjustable by removing the plug from the socket and reinserting the plug in the socket in a different orientation.

5 Preferably the plug and socket are both of square cross section so that the plug can be received in the socket in one of four discrete orientations.

Preferably the limb supports are concave so as to positively locate the limb of the user on the limb supports. Thus the two limb supports and the third limb support together are of waved formation.

10 Preferably the uprights and the cross bar are removably joined together such that the exercise apparatus is collapsible.

However the uprights and the cross bar may alternatively comprise a single, integral, non collapsible exercise apparatus.

15 Preferably the or each upright comprises a base portion which rests, in a first condition, in use, on the floor, and an arm portion extending away from the base portion and the floor, the cross bar being joined to the arm portion at a position distal from the base portion.

20 Preferably the arm portion extends away from one end of the base portion to a position substantially above the mid point of the base portion. The base portion thus, when viewed in plan, extends away from both sides of the longitudinal axis of the cross bar so as to provide stability to the exercise apparatus to resist the exercise apparatus tipping over in use.

Preferably the orientation of each arm portion relative to the respective base portion is such that the exercise apparatus can be used in a second

condition wherein the exercise apparatus has been rotated through approximately 90° so that the cross bar is adjacent, in use in the second condition, the floor.

Preferably the arm portion is inclined from the base portion.

- 5 Preferably the angle between the arm portion and the base portion is between 30° and 90°. Most preferably the angle is substantially 45°. Alternatively the arm portion extends substantially perpendicularly from the base portion. The arm portion may be curved.

Preferably each base portion is formed with a hand grip.

- 10 Preferably the orientation of each hand grip relative to the respective base portion is adjustable.

- 15 Preferably the orientation of each hand grip is adjustable by rotating the longitudinal axis of the hand grip relative to the respective base portion about an axis that is perpendicular to the longitudinal axis of the base portion.

Preferably the orientation of each hand grip is adjustable to a plurality of discrete positions. Most preferably the orientation of each hand grip is adjustable to four discrete positions.

- 20 Other aspects of the present invention may include any combination of the features or limitations referred to herein.

The present invention may be carried into practice in various ways, but embodiments will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 is an exploded perspective view of the components of an exercise apparatus in accordance with the present invention;

Figure 2 is a perspective view of the exercise apparatus of **Figure 1** in an assembled condition;

5 **Figure 3** is a perspective view of an alternative embodiment of the exercise apparatus in accordance with the present invention;

Figure 4 is a perspective view of a further alternative embodiment of the exercise apparatus in accordance with the present invention with the exercise apparatus in a first condition; and

10 **Figure 5** is an end view of the exercise apparatus of **Figure 4** in a second condition;

Referring to **Figures 1** and **2**, an exercise apparatus 1 comprises two spaced apart substantially vertical uprights 3 joined together by a single, substantially horizontal cross bar 5. The uprights 3 and the cross bar 5
15 are made from a tubular metal material although any other suitable material may alternatively be used.

Each upright 3 comprises a horizontal base portion 7 having two ends 9, 11, and an arm portion 13 extending upwardly away from end 9 of the base portion 7. The arm portion 13 of each upright 3 is inclined relative
20 to the base portion 7 and is of a length such that distal end 14 of the arm portion 13 terminates at a position substantially above the point midway between the two ends 9, 11 of the base portion 7. A brace 15 extends vertically between the distal end 14 of the arm portion 13 and the point midway between the two ends 9, 11 of the base portion 7.

The end 11 of each upright 3 is provided with a handle 8.

The distal end 14 of each arm portion 13 is provided with an inwardly directed socket 16 adapted to receive an end of the cross bar 5.

5 The cross bar 5 comprises an elongate bar that is curved along its length so as to define three concave regions 17, 18, 19. The cross bar 5 thus resembles a wave along its longitudinal axis. At the intersection between the concave regions 17 and 18, and the intersection between the concave regions 18 and 19, are provided respective short beams 20, 21 which each extend perpendicularly away from the longitudinal axis of the cross
10 bar 5.

The concave regions 17, 18, 19 and the short beams 20, 21 each comprise limb supports together forming limb support means to support part of the user of the exercise apparatus 1.

To assemble the exercise apparatus 1, the ends of the cross bar 5 are
15 inserted into the sockets 16 provided on the arm portions 13 of the uprights 3. Securing means 22 such as a bolt or split pin are provided to secure the ends of the cross bar 5 in the sockets 16.

20 Additionally, cross braces 23 are provided and extend between the base portions 7 of the uprights 3 to further strengthen the exercise apparatus 1. The ends of each cross brace 23 terminate in a cupped region 25 dimensioned to partially receive the respective base portion 7 and any suitable securing means 25 such as a bolt or split pin can be provided to secure the cross braces 23 between the base portions 7. Thus
25 it will be appreciated that the exercise apparatus 1 is collapsible and can be disassembled by reversing the above procedure so that the exercise apparatus 1 can be stored in a relatively flat condition.

When assembled, the cross bar 5 is spaced from the base portions 7 of the uprights 3 and is thus spaced from the surface on which the exercise apparatus 1 is placed. It is envisaged that the exercise apparatus 1 would be used on a planar surface such as a floor. A padded exercise mat may
 5 be provided between the planar surface and the exercise apparatus 1.

It will be appreciated that the arm portions 13 extend away from the base portions 7 a distance sufficient that a user of the exercise apparatus 1 can lie between the uprights 3 and beneath the cross bar 5. However, the cross bar 5 is also spaced from the base portions 7 sufficiently that a user
 10 can stand adjacent the cross bar 5 so that the cross bar 5 is located about waist height of the average user.

To develop the muscles of the outer back, shoulder and biceps, the user can lie beneath the cross bar 5 with his hands gripping the outer concave regions 17, 19 of the cross bar 5. His hands are thus spaced apart in a
 15 relatively wide grip and are adjacent the uprights 3. The user can then pull his upper body towards and away from the cross bar 5.

To develop the muscles of the inner back, shoulder and biceps, the user can again lie beneath the cross bar 5 but with his hands gripping the inner concave region 18 of the cross bar 5. His hands are thus close
 20 together in a relatively narrow grip remote from the uprights 3. Again the user can pull his upper body towards and away from the cross bar 5.

To develop the abdominal muscles, the user lies adjacent the exercise apparatus 1 with the back of his knees resting on respective concave regions 17 and 19. Thus his upper body and thighs are positioned on one
 25 side of the cross bar 5 and the lower legs are positioned on the other side of the cross bar 5. The user can then flex his upper body towards and away from the cross bar 5 so as to perform a sit up type exercise.

To develop the chest and shoulder muscles, and triceps, the user stands adjacent and facing the exercise apparatus and grips the outer concave regions 17, 19 with his hands. The use can then lower his upper body towards the cross bar 5. This can be achieved with the feet of the user
 5 on or off the floor.

Finally, to develop the triceps the user can stand adjacent but with his back to the exercise apparatus and again grip the outer concave regions 17, 19 with his hands. By flexing his arms, the user lowers his upper body towards the cross bar 5.

10 Thus the exercise apparatus 1 provides a compact, simple, strong apparatus for performing a plurality of different exercises by providing a plurality of supports for the hands and legs at a height such that the user can stand above or lie beneath the cross bar.

Figure 3 shows an alternative exercise apparatus 1' having similar
 15 features to the apparatus 1 of figures 1 and 2, but provided with a single, centrally located upright 13' mounted on a C-shaped base portion 7'.

Referring now to Figures 4 and 5 an alternative exercise apparatus 31 is shown with like features being given like references. In this embodiment, handles 33 are mounted on the ends of base portions 7 so as
 20 to be substantially parallel with the respective base portion 7. This is achieved by part of each handle 33 bending through 90° to form a downwardly extending plug 35 which is received in an upwardly extending socket 37 formed at the end of each base portion 7. The plug 35 and socket 37 are such that the handle 33 can be rotated about the
 25 longitudinal axis of the socket 37 through 360°. This enables the handle 33 to be parallel with the base portion 7 and extending either towards or away from the upright 3, or perpendicular to the base portion 7 and

extending towards or away from the other base portion 7. This can be achieved by forming the socket 37 with a square internal cross section, the plug 35 having a complimentary square cross section. Any other suitable cross section could alternatively be used. The different positions of the handles 33 are shown in phantom.

The cross bar 39 of the exercise apparatus 31 comprises a central concave region 18 and two outer substantially straight regions 41, 43. Each outer region 41, 43 terminates in a region 45, 47 respectively that is positioned at 90° to the longitudinal axis of the cross bar 39, each region 45, 47 being received in the top of a respective upright 3 to mount the cross bar 39 on the uprights 3.

At the intersection between the concave region 18 and each straight region 41, 43 are respective short beams 49, 51 that extend perpendicularly away from the longitudinal axis of the cross bar 39. A handle 53, 55 is provided at the end of each short beam 49, 51, each handle 53, 55 being rotatable about the axis of the respective beam 49, 51 by 360°. This allows the orientation of the handles 53, 55 to be adjusted relative to the longitudinal axis of the cross bar 39.

Any suitable adjustment means can be provided to effect this adjustment, for example the handles 53,55 may be of square cross section to be received in a square cross section socket portion at the end of each short beam 49, 51. Alternatively the handles 53,55 may be of circular cross section to slide over or be received within circular cross section portions of the respective short beam 49, 51, a grub screw or Allen bolt or the like being provided to clamp the handle 53, 55 in a particular orientation relative to the respective short beam 49, 51. Quick release means

comprising pins having rings attached can be provided to be received in suitable apertures in the handles 53, 55 and the short beams 49, 51.

In addition the braces 15 are provided with handles 15A which extend along substantially half of the length of each brace 15. The lower
5 portions of each arm portion 13 are also provided with handles 13A. The handles 13A and 15A comprise ribbed rubber plastic or neoprene sleeves that are slid onto the arm portions 13 or the braces 15 respectively.

The adjustable cross bar handles 53, 55, the adjustable base handles 33 and the additional handles 13A, 15A enable further adjustment of the
10 exercise apparatus 31 to be made so that a user of the exercise apparatus 31 can use the exercise apparatus 31 to perform a greater range of different exercises, including dips, pull-ups with the hands relatively close together or spaced-apart, and abdominal exercises. In addition, the exercise apparatus 31 allows some adjustment to enable users of different
15 sizes to use the apparatus 31.

Finally, different handle orientations enable different difficulties of the same exercises to be performed. Finally, the exercise apparatus 31 is ordinarily used with the base portions 7 resting on the floor as shown in Figure 5. However, it will be appreciated that the exercise apparatus 31
20 can alternatively be used in an alternative orientation with the cross bar 39 and the handles 33 resting on the floor. That is the exercise apparatus 31 can be rotated through approximately 90° so that the intersection of the base portions 7 with the uprights 3, is uppermost. This is enabled by the angle between the base portions 7 and the respective upright 3 being
25 sufficient that the exercise apparatus 31 is stable when rotated to the alternative orientation. It is envisaged that an angle between 45° and 90° be suitable. The alternative orientation of the exercise apparatus 31

repositions the handles 33, 53, 55, 13A and 15A to enable the user to carry out yet further exercises using the same exercise apparatus 31 including, for example, dips, squats to strengthen the legs, and chest and shoulder exercises.